

What is claimed is.

1. In agricultural equipment, construction  
machinery, machine tool, or appliances, including an over  
5 running clutch having an input connected in rotatably  
driven relation to a source of rotatable power, and an  
output connected in rotatably driven relation to rotatable  
elements of the picking unit, the input and output being  
jointly rotatable along a path of rotational movement when  
10 the input and output are engaged such that the power source  
will rotate the rotatable elements at a desired rotational  
speed, and the input and output being rotatable one  
relative to the other along the path of rotational movement  
in an over running condition, and the improvement  
15 comprising;

a sensor operable in a first state when  
a predetermined magnetic field is absent, and operable in a  
second state when the predetermined magnetic field is  
20 present;

a magnetic actuator mounted near a  
first of the input or the output and operable for emitting  
the predetermined magnetic field; and  
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a shield disposed on a second of the input or the output in a position for shielding the sensor from the actuator when the input and the output are jointly rotating in the normal condition, and such that when the  
5 input and the output are in the overrunning condition the shield will be at least intermittently positioned to allow the sensor to be sufficiently exposed to the magnetic field to change the state of the sensor.

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2. In a vertical cotton harvester drum, of the type having a rotor shaft keyed to and extending up through the internal slippable hub of a slip clutch, and an input drive mounted to the external drive portion of a slip  
15 clutch; the improvement comprising: a non-contact system for instantaneously detecting when the clutch slips or overruns, which system comprises a fixed magnetic actuator and a reed switch sensor and shield assembly located at the clutch and changes states at the instant the clutch slips.

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3. The improved cotton harvester drum clutch slippage detection and system of claim 2 wherein  
(a.) the clutch comprises an external housing and an

internal hub portion, (b.) at least one magnetic reed  
switch sensor fixed upon an appendage extending from the  
clutch's external housing, (c.) an actuator opposite at  
least one sensor which actuator transmit a magnetic field  
5 there-between, the switch and a shield extending radically  
from the internal portion of said clutch so as to block the  
field between the sensor and actuator until the clutch  
slips; said shield having a series of spaced apart  
openings, and said shield being disposed such that as the  
10 clutch faults, the shield revolves to a position exposing  
the actuator and sensor, face-to-face through one or more  
of a series of openings, thereby changing the state of the  
switch instantly, and allowing clutch slippage to be  
thereby detected without the need for sensing speed  
15 differential between other shafts nor comparing or  
averaging adjacent rotor shaft assemblies.